



SANYO Semiconductors

## DATA SHEET

An ON Semiconductor Company

# MCH6603 — P-Channel Silicon MOSFET

## General-Purpose Switching Device Applications

### Features

- Low ON-resistance
- Ultrahigh-speed switching
- 1.5V drive
- Composite type with 2 MOSFETs contained in a single package, facilitating high-density mounting
- Halogen free compliance

### Specifications

#### Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	$V_{DSS}$		-50	V
Gate-to-Source Voltage	$V_{GSS}$		$\pm 10$	V
Drain Current (DC)	$I_D$		-0.14	A
Drain Current (Pulse)	$I_{DP}$	$PW \leq 10\mu s$ , duty cycle $\leq 1\%$	-0.56	A
Allowable Power Dissipation	$P_D$	When mounted on ceramic substrate (900mm <sup>2</sup> ×0.8mm)1unit	0.8	W
Channel Temperature	$T_{ch}$		150	°C
Storage Temperature	$T_{stg}$		-55 to +150	°C

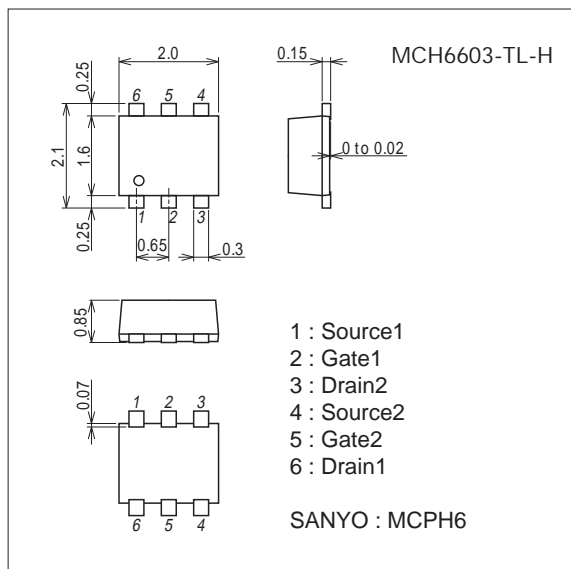
This product is designed to "ESD immunity < 200V\*\*", so please take care when handling.

\* Machine Model

### Package Dimensions

unit : mm (typ)

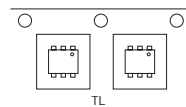
7022A-006



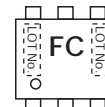
### Product & Package Information

- Package : MCPH6
- JEITA, JEDEC : SC-88, SC-70-6, SOT-363
- Minimum Packing Quantity : 3,000 pcs./reel

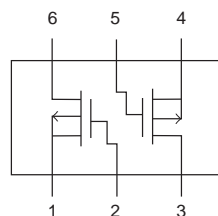
### Packing Type : TL



### Marking



### Electrical Connection



SANYO Semiconductor Co., Ltd.

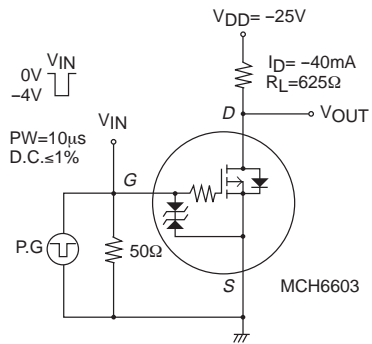
<http://semicon.sanyo.com/en/network>

# MCH6603

## Electrical Characteristics at $T_a=25^\circ\text{C}$

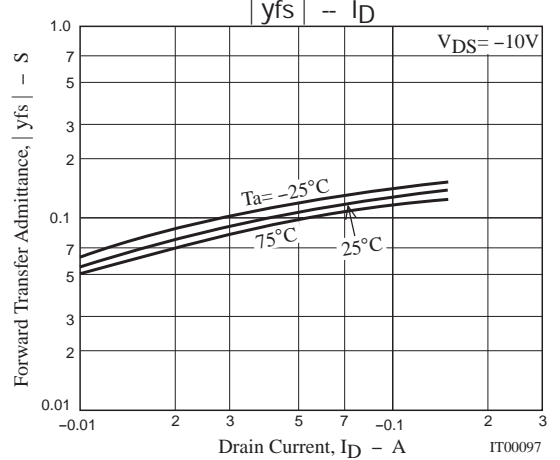
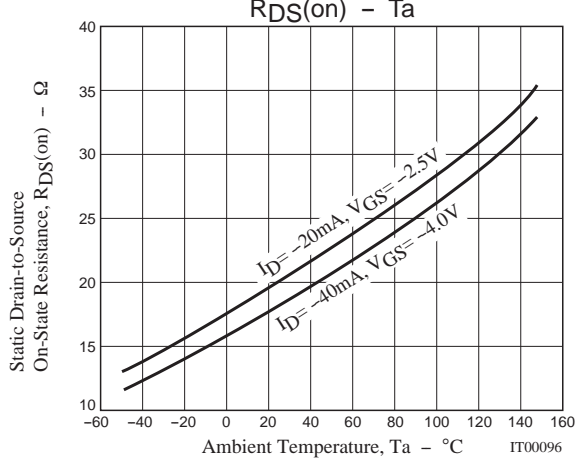
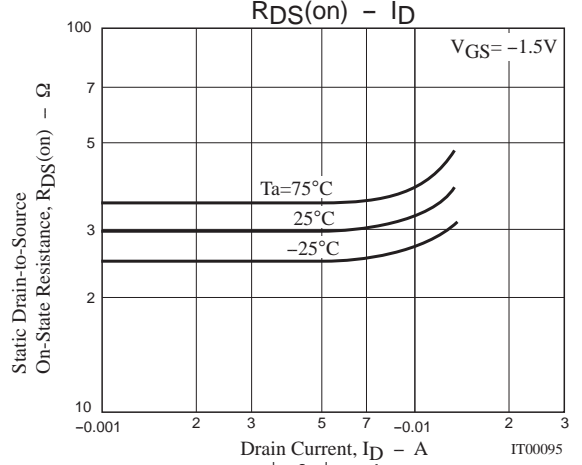
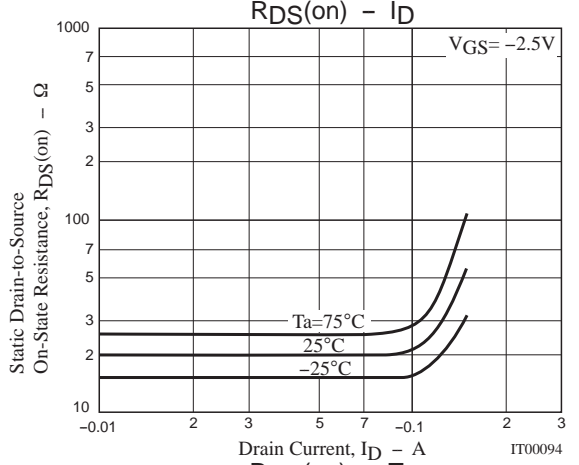
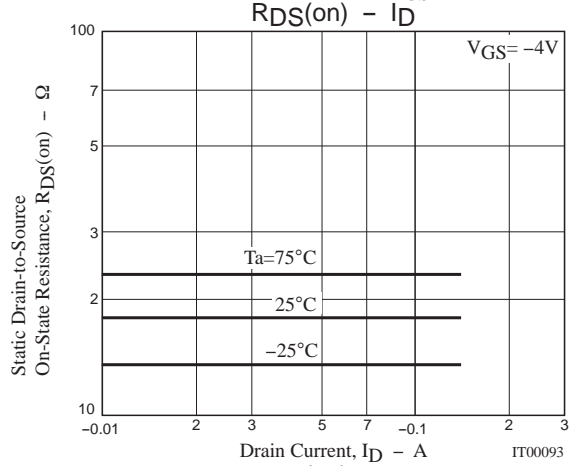
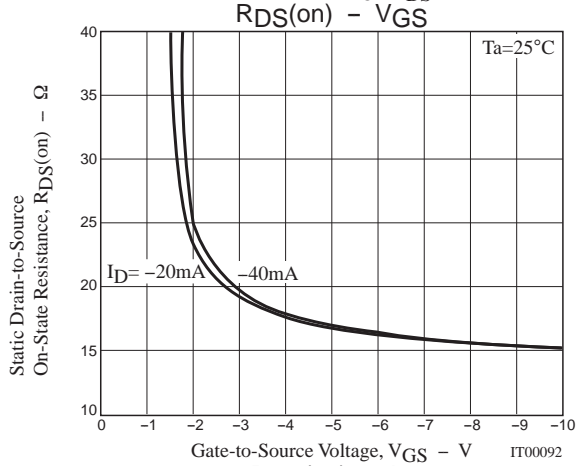
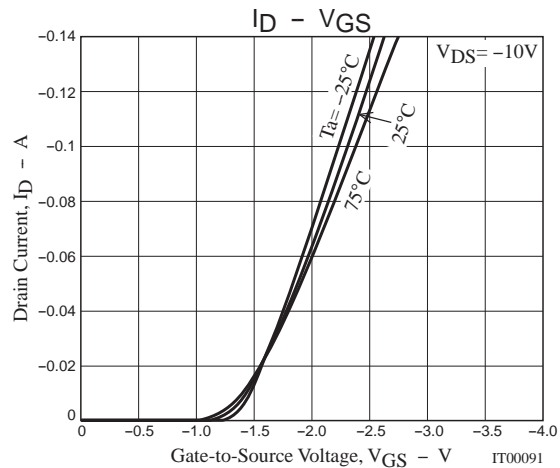
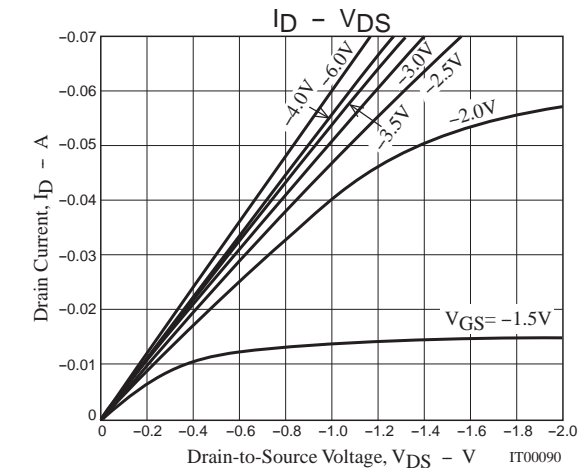
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=-1\text{mA}, V_{GS}=0\text{V}$	-50			V
Zero-Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=-50\text{V}, V_{GS}=0\text{V}$			-1	$\mu\text{A}$
Gate-to-Source Leakage Current	$I_{GSS}$	$V_{GS}=\pm 8\text{V}, V_{DS}=0\text{V}$			$\pm 10$	$\mu\text{A}$
Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=-10\text{V}, I_D=-100\mu\text{A}$	-0.4		-1.4	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=-10\text{V}, I_D=-40\text{mA}$	70	110		mS
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D=-40\text{mA}, V_{GS}=-4\text{V}$		18	23	$\Omega$
	$R_{DS(on)2}$	$I_D=-20\text{mA}, V_{GS}=-2.5\text{V}$		20	28	$\Omega$
	$R_{DS(on)3}$	$I_D=-5\text{mA}, V_{GS}=-1.5\text{V}$		30	60	$\Omega$
Input Capacitance	$C_{iss}$	$V_{DS}=-10\text{V}, f=1\text{MHz}$		7.4		pF
Output Capacitance	$C_{oss}$			4.2		pF
Reverse Transfer Capacitance	$C_{rss}$			1.3		pF
Turn-ON Delay Time	$t_d(on)$		See specified Test Circuit.		20	
Rise Time	$t_r$			35		ns
Turn-OFF Delay Time	$t_d(off)$			160		ns
Fall Time	$t_f$			150		ns
Total Gate Charge	$Q_g$	$V_{DS}=-10\text{V}, V_{GS}=-10\text{V}, I_D=-70\text{mA}$			1.40	
Gate-to-Source Charge	$Q_{gs}$			0.16		nC
Gate-to-Drain "Miller" Charge	$Q_{gd}$			0.23		nC
Diode Forward Voltage	$V_{SD}$	$I_S=-70\text{mA}, V_{GS}=0\text{V}$		-0.85	-1.2	V

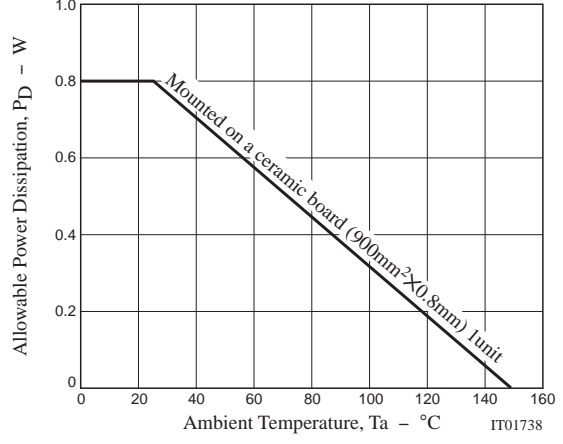
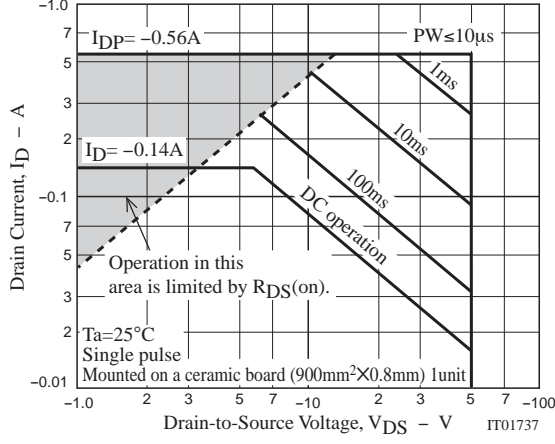
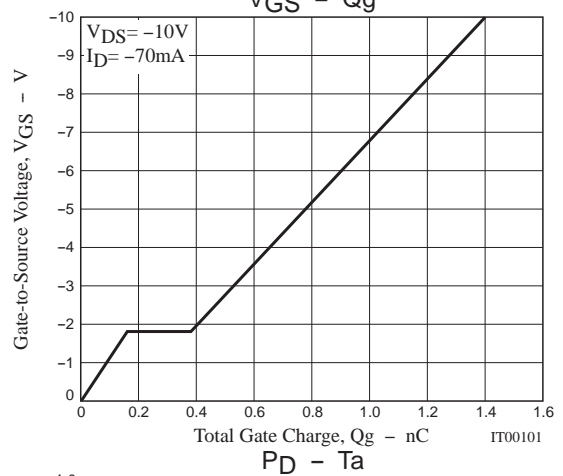
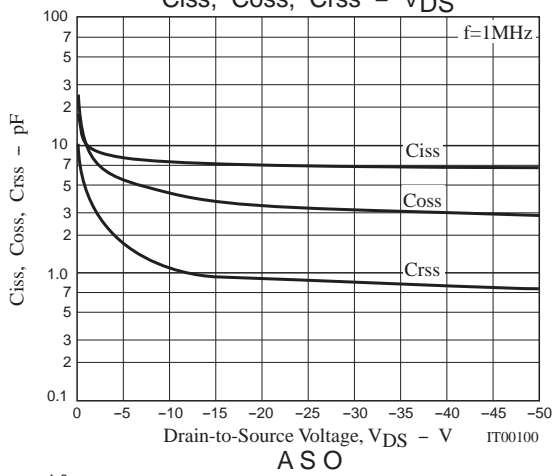
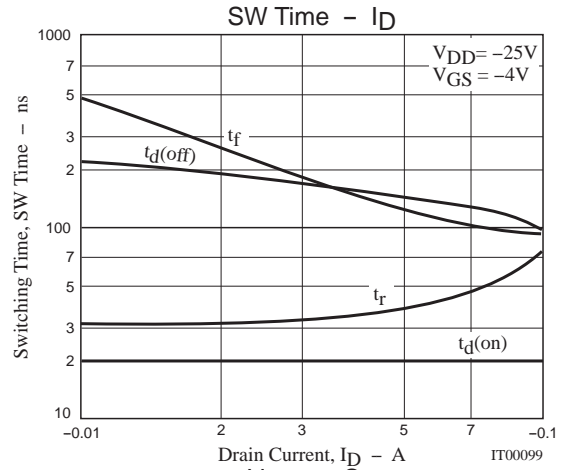
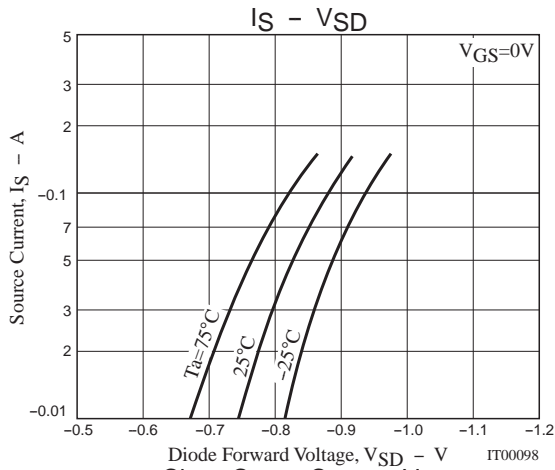
## Switching Time Test Circuit



## Ordering Information

Device	Package	Shipping	memo
MCH6603-TL-H	MCPH6	3,000pcs./reel	Pb Free and Halogen Free



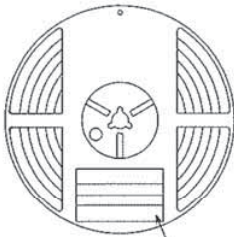


Taping Specification  
MCH6603-TL-H

1. Packing Format

Package Name	Carrier Tape Type	Maximum Number of devices contained (pcs)			Packing format	
		Reel	Inner box	Outer box	Inner BOX (C-1)	Outer BOX (A-7)
MCPH6	MCP4	3,000	15,000	90,000	5 reels contained Dimensions:mm (external) 183×72×185	6 inner boxes contained Dimensions:mm (external) 440×195×210

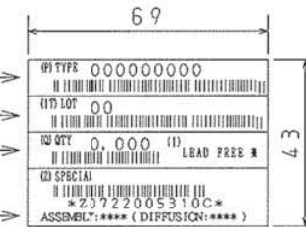
Packing method



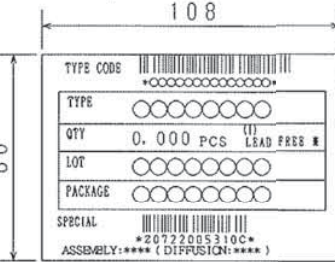
Reel label

Type No.  
LOT No.  
Quantity  
Origin

Reel label, Inner box label  
(unit:mm)



Outer box label  
It is a label at the time of factory shipments. The form of a label may change in physical distribution process.



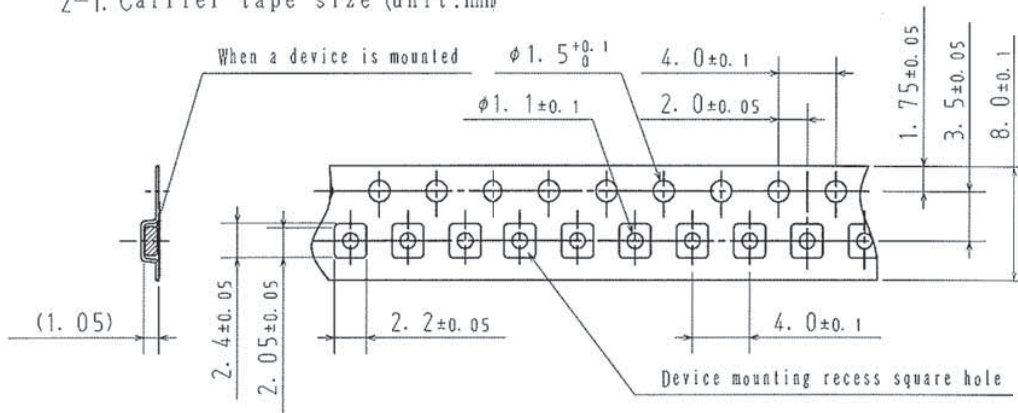
NOTE (1)

The LEAD FREE \* description shows that the surface treatment of the terminal is lead free.

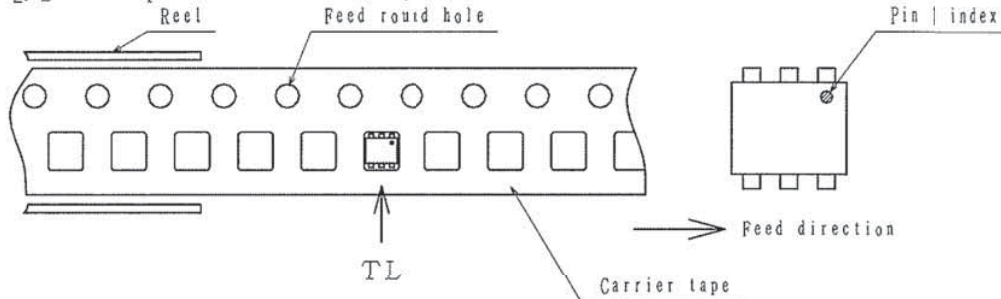
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

2-1. Carrier tape size (unit:mm)



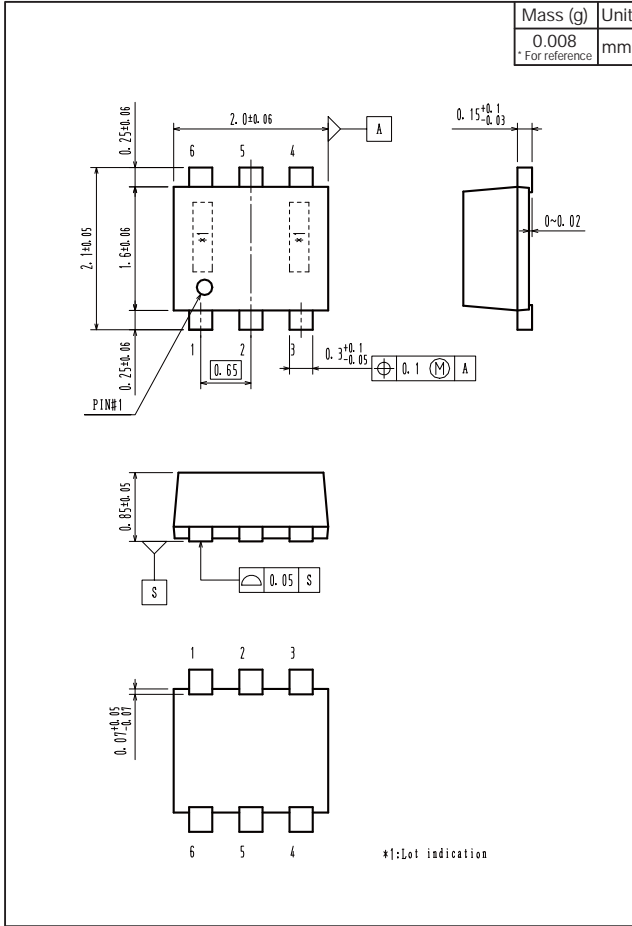
2-2. Device placement direction



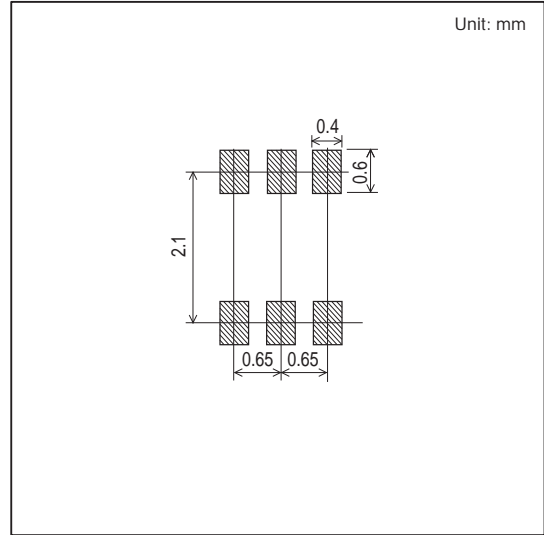
Those with pin | index on the feed hole side.....TL

# MCH6603

## Outline Drawing MCH6603-TL-H



## Land Pattern Example



Note on usage : Since the MCH6603 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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